David Rosenboom — Project Plan

Propositional Music—writing and producing a new book with media components

As a creative investigator applying experimental approaches to music making drawing inspiration from allied arts and sciences, I have long championed a particular interdisciplinary focus on the liminal space in which art and science merge in deep shared explorations. Over five decades, I have developed a unique philosophy, framework, and method for compositional practice in experimental music that proceeds from proposing *models* informed by *pandisciplinary* interests, and then proceeding to make work consistent with those models. I call this *propositional music*, a concept that is unique in the perspective it can bring to the vast arenas of experimental practice today. I have described it in numerous writings, and have used it in my teaching for many years. I can proudly report that some of my students have carried these ideas forward to significant successes: Chris Brown, composer and Music Department leader at Mills College, Ellen Reid, Pulitzer Prize winning composer, and Sarah Belle Reid, composer-performer-developer of extended instrument technologies, are just three examples.

In music composition and performance, I have produced a substantial body of work, spanning instrumental, electronic, performance art, large-scale collaborative, and interactive multimedia forms. My professional profile straddles boundaries among creative arts and sciences, which challenges aligning it in an easily labeled way. I am also known for foundational work originating in the early 1970s merging music and neuroscience in creative projects, for example, *brainwave music*. This has led to the emergence of what has become a broad field of research and creative practice represented in international conferences and publications. Currently, I am developing new work in what I refer to as *concurrent complexity*, a neuro-cybernetic approach to measuring complexity in multi-modal, networked stimulus environments and correlating those to measures of complexity in signals from hyper-brains (linked EEG measures from multiple participants) to produce immersive, creative experiences in a feedback framework that can enable self-organization. This is an example of working with complex adaptive systems and dynamically emergent forms.

Though my identity as a composer might suggest applying under the category of music composition, the project for which I am seeking support is the creation of a book with linked media components, provisionally titled *Propositional Music*. The intention is to fully illuminate this critical technical practice in a way that provides readers with a fresh way to look at the spectrum of activities emerging inside today's experimental music. It is also intended to inspire others by offering useful, open systems, interdisciplinary approaches to the vast arenas of possibility at the intersection of experimental music with sciences. The book and associated media would provide philosophical and methodological discussions illustrated by concrete examples informed by both philosophical and pragmatic assertions.

Propositional music is a point of view about composing, in which composers might build proposed models of worlds, universes, evolution, brains, consciousness, or whole domains of thought and life, and then proceed to make dynamical musical embodiments of these models, inviting us to experience them in spontaneously emerging sonic forms. Such a practice fuels creative music methodologies when energized in composition, improvisation, analysis, and adjacent areas of interdisciplinary thought. According to this view, composing involves proposing models for whole musical realities. Their correspondence to proposed realities navigates a profound and complex meeting place for creative license and scientific verification. In science, one brings an idea to the world mostly by proving it. Artists, musicians, and engineers manifest their ideas through making. The concept of propositional music unifies the two in an area where music, science, and philosophy can meet in shared theoretical investigations, one in which distinctions may collapse into a new kind of *artscience*.

Model building is key. In defining a model, perhaps informed by *pandisciplinarity*, one activates the agency to freely imagine a world and give it materiality in the form of compositional practice, and when realized, explore what might be discovered in what the model produces. “Composition becomes an activity of world-model building, an imaginative process that engages with the cognitive processes of performers and listeners alike, using means and models derived from and developed with advances in science and technology.” (Impett, 2021) When beginning a new work, we may ask, what is the *universal set* for the work? When approached with complete openness to possibilities, the universal set can describe a new domain for what can be selected to receive compositional attention and the kinds of distinctions that may be made through compositional thought and choice. Next, we may ask, how will the universe be ordered? Can we construct a kind of relationship matrix that might show if and how specific elements of the universal set may be related? This step involves delineating elements by setting limitations that define the boundaries of a propositional world, not unlike the way scientists might design experiments. Then we may ask, what are the scales of measure for the parametric values used in mapping relationships among the elements of the world? What are the levels of significant difference; what are the ways elements may be considered as same or different? Finally, we may design the compositional pragmatics necessary to make arrangements among the distinct entities in the universal set, perhaps including how all these distinctions may evolve and self-organize as a result of production with feedback.

Experimental music challenges and expands the notions of what people consider to be music. Propositional music invites active imaginative listeners to approach new works as explorers ready to experience the joy of discovery, not as passive receivers of something they must understand. The book would begin by situating compositional practices today in relation to propositional music, explain its philosophical and pragmatic emergence, and suggest how the idea of propositional music may illuminate compositional thinking and creative engagement.

Subsequent provisional chapters may explore:

- propositional music—philosophy, background, and genealogy from mid-20th century to now,
- music as an instrument for navigating arenas of knowledge,
- comprehending the undefined in emergent musical forms,
- the *ponderability* of musical forms—form and cause,
- propositional models as compositional determinants—choosing and ordering musical universes—compositional methods with numerous examples analyzed,
- configuration spaces as compositional tools—particular techniques for propositional modeling and for regarding musical notation as interface design,
- propositional models as instruments—imbedding compositional models in live performance tools,
- propositional models in organizing improvisation,
- collapsing forms in performance through modular structures with multiple pathways,
- emergent global properties and *holarchies*—processes with both top-down and bottom-up organization,
- dissipation, complexity, and resonance in dynamical musical processes,
- propositional models in richly networked, collective global creation,
- collapsing distinctions—lessons from experimental music informing co-creative communication, interactivity, and musical intelligence as a field phenomenon,
- active imaginative listening—listening as performance, learning to hear and parse complexity,
- propositional models in extended musical interface with the human nervous system—neuro-music, neuro-cybernetics, and brain-computer music interfacing (BCMI),

- concurrent complexity—multi-modal environments, hyper-brains, and self-organization,
- propositional models in music learning—implications for music pedagogies, and
- propositional music and society.

A significant portion of the volume would be devoted to compositional stories, critically important materials with extensively detailed examples of model building, along with methodologies for their realization and detailed critical analyses of results. Suggestions for how readers might extend these ideas, along with tools for creation and supplemental interactive media material, may be developed and included.

Financial support offered by a Guggenheim Fellowship would help to enable work time, travel, research assistance, copy editing, searching/finding/acquiring important materials, engaging consultants from adjacent fields (mathematics, science, history, philosophy), preparing interactive materials intended to parallel the printed pages, software examples, website preparation and programming, and ancillary needs.

During the past few months, my extensive personal archive has been newly organized, and a finding aid has been published. (See Rosenboom & Chernysheva 2022). This collection has been tapped previously by researchers investigating specific topics in American experimental music and multimedia art. With this new finding aid, the archive can now be accessed efficiently as a significant resource for this project. For further information on my work, see: http://www.davidrosenboom.com

References—a few selected titles relevant to the proposal topic:

2022 Finding Aid for David Rosenboom, Music Papers and Inventions, 1947 – 2022. With A. Chernysheva. [Online: http://www.davidrosenboom.com]

2021 Illusions of form. In Impett, J. (ed.). Sound Work: Composition as Critical Technical Practice, 35-78 & 137-148. (Leuven, Belgium: Leuven University Press and Ghent, Belgium: Orpheus Institute).

2019 More than one—artistic explorations with multi-agent BCIs. With T. Mullen. In Nijholt, A. (ed.). Brain Art, Brain-Computer Interfaces for Artistic Expression, 117-143. (Springer Nature Switzerland AG).

2018 Propositional music of many nows. In Bogdanovic, D. and X. Bouvier (Eds.) Tradition and Synthesis—Multiple Modernities for Composer-Performers, 121-142. (Lévis, Québec, Canada: Les Éditions Doberman-Yppan).

2014 Active imaginative listening—a neuromusical critique. Frontiers in Neuroscience, Auditory Cognitive Neuroscience, The Musical Brain, 8, 1-7, DOI=10.3389/fnins.2014.00251.

2003 Propositional music from extended musical interface with the human nervous system. In Avanzini, G., Faienza, C., Lopez, L., Majno, M., and Minciacchi, D. (Eds.). The Neurosciences and Music, Volume 999 of the Annals of the New York Academy of Sciences, 263-271. (New York: NYAS).

2000 Propositional music: on emergent properties in morphogenesis and the evolution of music, essay, propositions, commentaries, imponderable forms and compositional methods. In Zorn, J. (ed.) *Arcana, Musicians on Music*. New York, NY: Granary Books/Hips Road, 203-232.

1990 and 1997 Extended Musical Interface with the Human Nervous System: Assessment and Prospectus. Leonardo Monograph Series, 1. (Berkeley, CA: International Society for the Arts, Sciences, and Technology). Revised version. (1997). (Cambridge, MA: The MIT Press, Electronic Journals, Leonardo Monograph Series, 1). [Online: http://www.davidrosenboom.com]

1975 Biofeedback and the Arts: Results of Early Experiments, (ed.). (Vancouver: Aesthetic Research Centre of Canada; and Hanover, NH: Frog Peak Music).